

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-21 (Cancelled)

22. (Currently Amended) A liquid metering device comprising:

a conduit including a lumen adapted to permit liquid to flow through the conduit, a portion of the conduit having a wall adjacent the lumen through which light may pass;

a liquid heater adapted to heat a portion of the liquid at a first position along the conduit;

a light source adapted to generate at least one beam;

a beam splitter adapted to split the at least one beam into a first beam and a second beam directed along respective first and second beam paths, wherein at least one of:

(i) the first beam path passes, with respect to a first side of the conduit, all the way through the conduit and all the way through the lumen at a second position along the conduit and the second beam path does not pass through the lumen of the conduit, **wherein the first beam has a same frequency exiting the lumen as compared to entering the lumen,** and

(ii) the first beam path crosses the lumen at the second position along the conduit and the second beam path does not enter the lumen of the conduit and does not enter the wall of the conduit **wherein the first beam has a same frequency exiting the lumen as compared to entering the lumen;**

a device adapted to combine the first and second beams after the first beam has at least one of passed all the way through the lumen and crossed the lumen, ~~respectively~~ **respectively**, such that the first and second beams undergo a degree of interference; and

an optical detector adapted to detect an intensity variation of the combined first and second beams caused by a heated portion of the liquid passing through the first beam.

23. (Previously Presented) The liquid metering system of claim 22 further comprising an optical phase delay element in the first path or the second path.

24. (Previously Presented) The liquid metering system of claim 23, wherein the optical phase delay element is separate from the conduit.

25. (Previously Presented) The liquid metering system of claim 22 wherein the wall is a glass wall or a polymer wall.

26. (Previously Presented) The liquid metering system of claim 22 wherein the lumen has a rectangular or square cross section.

27. (Previously Presented) The liquid metering system of claim 22 wherein the liquid heater is an infrared laser.

28. (Previously Presented) The liquid metering system of claim 22 wherein the light source emits visible light.

29. (Previously Presented) The liquid metering system of claim 22 wherein the light source is coherent.

30. (Previously Presented) The device of claim 22, further comprising:
a processor adapted to determine the speed at which the liquid is passing through the conduit based on the time between the point at which fluid begins to flow through the conduit and the time that the optical detector detects an intensity variation of the combined first and second beams.

31. (Previously Presented) The device of claim 22, further comprising:
a processor adapted to determine the speed at which the liquid is passing through the conduit based on the time between the point at which the fluid is heated while moving

through the conduit and the time that the optical detector detects an intensity variation of the combined first and second beams.

32. (Previously Presented) The device of claim 22, wherein the detector detects a change in the degree of interference caused by the heated portion of the liquid passing through the first beam.

33. (Currently Amended) A method of metering a liquid comprising the steps of:
heating a portion of the liquid at a first position along a conduit including a lumen,
wherein the conduit has a wall adjacent the lumen at a second position downstream from the first position;

directing a first beam of light along a first path;

directing a second beam of light along a second path,

wherein at least one of:

(i) the first path passes, with respect to a first side of the conduit, all the way through the conduit and through the lumen and the second path does not pass through the lumen of the conduit, **wherein the first beam has a same frequency exiting the lumen as compared to entering the lumen,** and

(ii) the first path crosses the lumen and the second path does not enter the lumen of the conduit and does not enter the wall of the conduit, **wherein the first beam has a same frequency exiting the lumen as compared to entering the lumen;**

the method further comprising:

recombining the first and second beams after the first beam has at least one of passed all the way through the lumen and crossed the lumen, respectively, such that the first and second beams undergo a degree of interference; and

detecting a change in the intensity of the recombined first and second beams caused by the heated portion of the liquid passing through the first beam of light.

34. (Previously Presented) The method of claim 33 wherein the wall is a glass wall or a polymer wall.

35. (Previously Presented) The method of claim 33 wherein the lumen has a rectangular or square cross section.
36. (Previously Presented) The method of claim 33 wherein the first and second beams are visible light beams.
37. (Previously Presented) The method of claim 33 wherein the heating step comprises the step of directing an infrared laser beam to the liquid.
38. (Previously Presented) The method of claim 33, wherein an optical phase delay element is located in the first path or the second path.
39. (Previously Presented) The method of claim 33 wherein the source of the first and second beams is a coherent light source.
40. (Previously Presented) The method of claim 38, wherein the optical phase delay element is separate from the conduit.
41. (Previously Presented) The method of claim 33, further comprising detecting a change in the degree of interference caused by the heated portion of the liquid passing through the first beam of light.
42. (Previously Presented) The method of claim 33, further comprising:
automatically determining the speed at which the liquid is passing through the conduit based on the time between the point at which fluid begins to flow through the conduit and the time that the optical detector detects an intensity variation of the combined first and second beams.
43. (Previously Presented) The method of claim 33, further comprising:
automatically determining the speed at which the liquid is passing through the conduit based on the time between the point at which the fluid is heated while moving through the

conduit and the time that the optical detector detects an intensity variation of the combined first and second beams.